# 10049678 1004089678

## JC13 Rec'd PCT/PTO 0 3 APR 2002

配列表

#### SEQUENCE LISTING

<110> ASANO Shinichiro et al.

<120> Protein Having Insecticidal Activity, DNA Coding Said Protein, Pest Control Agent and Pest Control Method

<130> BOF-3887PCT

<150> JP 2000-236140

<151> 2000-08-03

<160> 3

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<211> 1167

<212> PRT

<213> Bacillus thuringiensis

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Ser Glu Gly Glu Asn Pro Glu Leu Phe Gly Asn Pro Glu Thr Phe Ile 50 55 60

Ser Ser Ser Thr Val Gln Thr Gly Ile Gly Ile Val Gly Gln Val Leu 65 70 75 80

Gly Ala Leu Gly Val Pro Phe Ala Gly Gln Ile Ala Ser Phe Tyr Ser 85 90 95

- Phe Ile Val Gly Gln Leu Trp Pro Ser Ser Thr Val Ser Val Trp Glu 100 105 110
- Met Ile Met Lys Gln Val Glu Asp Leu Ile Asp Gln Lys Ile Thr Asp 115 120 125
- Ser Val Arg Lys Thr Ala Leu Ala Gly Leu Gln Gly Leu Gly Asp Gly 130 135 140
- Leu Asp Val Tyr Gln Lys Ser Leu Lys Asn Trp Leu Glu Asn Arg Asn 145 150 155 160
- Asp Thr Arg Ala Arg Ser Val Val Thr Gln Tyr Ile Ala Leu Glu 165 170 175
- Leu Asp Phe Val Ala Lys Ile Pro Ser Phe Ala Ile Ser Gly Gln Glu 180 185 190
- Val Pro Leu Leu Ser Val Tyr Ala Gln Ala Ala Asn Leu His Leu Leu 195 200 205
- Leu Leu Arg Asp Ala Ser Ile Phe Gly Ala Glu Trp Gly Phe Thr Pro 210 215 220
- Gly Glu Ile Ser Thr Phe Tyr Asp Arg Gln Val Thr Arg Thr Ala Gln 225 230 235 240
- Tyr Ser Asp Tyr Cys Val Lys Trp Tyr Asn Thr Gly Leu Asp Lys Leu 245 250 255
- Lys Gly Thr Asn Ala Ala Ser Trp Leu Lys Tyr His Gln Phe Arg Arg 260 265 270
- Glu Met Thr Leu Leu Val Leu Asp Leu Val Ala Leu Phe Pro Asn Tyr 275 280 285
- Asp Thr Arg Thr Tyr Pro Ile Glu Thr Thr Ala Gln Leu Thr Arg Glu

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Cys	Arg	Arg	Trp	Ser 325	Leu	Asn	Ser	Asp	11e 330	Ser	Phe	Ser	Glu	Val 335	Glu
Ser	Ala	Val	11e 340	Arg	Ser	Pro	His	Leu 345	Phe	Asp	Ile	Leu	Ser 350	Glu	Ile
Glu	Phe	Tyr 355	Thr	Thr	Arg	Ala	Gly 360	Leu	Pro	Leu	Asn	Asn 365	Thr	Glu	Tyr
Leu	Glu 370	Tyr	Trp	Val	Gly	His 375	Ser	He	Lys	Tyr	Lys 380	Asn	Thr	Asn	Ala
Ser 385	Ser	Ala	Leu	Glu	Arg 390	Asn	Tyr	Gly	Thr	11e 395	Thr	Ser	Asn	Lys	11e 400
Lys	Tyr	Tyr	Asp	Leu 405	Ala	Asn	Lys	Asp	11e 410	Phe	Gln	Val	Arg	Ser 415	Leu
Gly	Ala	Asp	Leu 420	Ala	Asn	Tyr	Tyr	Ala 425	Gln	Val	Tyr	Gly	Val 430	Pro	Tyr
Ala	Ser	Phe 435	Thr	Leu	Leu		Lys 440				Ser	Gly 445		Val	Gly
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- Lys Asn Ala Ser Ser Pro Ala Arg Tyr Gly Asn Leu Pro Val Phe Ala 500 505 510
- Trp Thr His Arg Ser Ala Asp Val Thr Asn Thr Val Tyr Ser Asp Lys 515 520 525
- Ile Thr Gln Ile Pro Val Val Lys Ala His Thr Leu Val Ser Gly Thr 530 535 540
- Thr Val Ile Lys Gly Pro Gly Phe Thr Gly Gly Asn Ile Leu Lys Arg 545 550 555 560
- Thr Ser Ser Gly Pro Leu Ala Tyr Thr Ser Val Ser Val Lys Ser Pro 565 570 575
- Leu Ser Gln Arg Tyr Arg Ala Arg Ile Arg Tyr Ala Ser Thr Thr Asn 580 585 590
- Leu Arg Leu Phe Val Thr Ile Ser Gly Thr Arg Ile Tyr Ser Ile Asn 595 600 605
- Val Asn Lys Thr Met Asn Lys Gly Asp Asp Leu Thr Phe Asn Thr Phe 610 615 620
- Asp Leu Ala Thr Ile Gly Thr Ala Phe Thr Phe Ser Asn Tyr Ser Asp 625 630 635 640
- Ser Leu Thr Val Gly Ala Asp Ser Phe Ala Ser Gly Gly Glu Val Tyr 645 650 655
- Val Asp Lys Phe Glu Leu Ile Pro Val Asn Ala Thr Phe Glu Ala Glu 660 665 670
- Glu Asp Leu Asp Val Ala Lys Lys Ala Val Asn Gly Leu Phe Thr Ser 675 680 685
- Lys Lys Asp Ala Leu Gln Thr Ser Val Thr Asp Tyr Gln Val Asn Gln 690 695 700

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His Ala Phe Ser Phe His Ile Asp Thr Gly Glu Ile Asp Leu Asn Glu

Asn Thr Gly Ile Trp Val Val Phe Lys Ile Pro Thr Thr Asn Gly Tyr

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Glu	Thr 930	Leu	Glu	Arg	Ala	Gln 935	Głn	Gln	Glu	Gln	Gln 940	Trp	Gln	Asp	Lys
Met 945	Ala	Arg	Lys	Arg	Gly 950	Ala	Ser	Glu	Lys	Ala 955		Tyr	Ala	Ala	Lys 960
Gln	Ala	He	Asp	Arg 965	Leu	Phe	Ala	Asp	Tyr 970	Gln	Asp	Gln	Lys	Leu 975	Asn
Ser	Gly	Val	Glu 980	Met	Ser	Asp	Met	Leu 985	Aia	Ala	Gln	Asn	Leu 990	Val	Gln
Ser	lle	Pro 995	Tyr	Val	Tyr		Asp 1000	Ala	Leu	Pro		Ile 1005	Pro	Gly	Met
	Tyr 010	Thr	Ser	Phe		G1u 1015	Leu	Thr	Asn		Leu 1020	Gln	Gln	Ala	Trp
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1090

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caa acg acc aca tta caa aac atg aac tat aaa gat tat ctg aga atg 144
Gln Thr Thr Leu Gln Asn Met Asn Tyr Lys Asp Tyr Leu Arg Met
35 40 45

tot gag gga gag aat oot gaa tta ttt gga aat oog gag acg ttt att 192

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Gly	Ala	Leu	Gly	Val	Pro	Phe	Ala	Gly	Gln	Ile	Ala	Ser	Phe	Tyr	Ser	
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ttc	att	gtc	gg t	caa	t t a	tgg	cca	tca	agt	acc	gtg	agt	gta	tgg	gaa	336
Phe	He	Val	Gly	Gln	Leu	Trp	Pro	Ser	Ser	Thr	Val	Ser	Val	Trp	Glu	
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Ser		Arg	Lys	Thr	Ala		Ala	Gly	Leu	Gln		Leu	Gly	Asp	Gly	
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			tat													480
	Asp	vai	Tyr	GIN		ser	Leu	Lys	AS n		Leu	GIU	ASI	Arg		
145					150					155					160	
~n +		6.770	an t		a a t	at t	at a	at a	200		tot	0 † 0	ae t	tta	ana	528
			gct													920
ASP	1 11 1	AIg	Ala	165	361	Vai	Val	Val	170	GIII	1 y 1	116	міа	175	Giu	
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ctt	an t		gtt	ac t	222	atc	cca	tet	+++	aca	ata	tet	aas	cao	ora a	576
			Val													010
ren	vah	1116	180	ліа	Lуз	110	110	185	THE	Ald	110	561	190		Olu	
			100					100					100			
ate	ces	112	tta	tea	gta	tat	ac a	caa	gr a	gra	aat	† ta	cat	t t ø	cta	624
			Leu													021
, 41	110	195		561	, a 1	1 y 1	200		111 a	mu	,,,,,,,,,	205		Dou	204	
		100					200					200				

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Leu	Leu	Arg	Asp	Ala	Ser	He	Phe	Gly	Ala	Glu	Trp	Gly	Phe	Thr	Pro	
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_	Thr															
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gtg	tat	aca	gat	cca	ata	gta	ttt	aac	aga	gaa	aca	agt	ggt	gga	ttt	960
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_	Arg															
- •	C	Ŭ	•	325					330					335		
_	gc t	_														1056
Ser	Ala	Val			Ser	Pro	His			Asp	He	Leu			He	
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Arg	Gly	Туг	Ser	His	Arg	Leu	Ser	His	He	Thr	Ser	Tyr	Ser	Phe	Ser	
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Lys	Asr	ı Ala	Ser	Ser	Pro	Ala	Arg	Tyr	Gly	Asn	Leu	Pro	Val	Phe	Ala	
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1111	DUI	561	Oly	565	Leu	, 11 tu	1 9 1	1111	570	, 41	501	, 41	D y S	575		
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Leu	361	UIII	580	1 9 1	лів	Aia	мд	585	мъ	1 9 1	AI a	561	590		ASI	
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tta	c ga	ctt	+++	gta	aca	att	tet	gga	act	cac	att	tac	tet	ata	aat	1824
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Leu	лıg	595	THE	741	1 11 1	110	600	Gry	1111	мь	110	605		110	non	
		000					000					000				
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Val		гуз	1111	MCI	изп	615	Gry	пор	пэр	LCu	620	IIIC	изп	1 11 1	THE	
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	Leu	Ala	1111	116		1111	ніа	1 11 C	1111			лзп	1 9 1	361	640	
625					630					635					040	
0.77		000	ate	g a t	a.c.	an i	tet		ae i	ten	aa.	aan	an n	att	tat	1968
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-,-	690	•				695					700					
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Leu	770	Lys	изр	иц	561	775	ME	LCu	1 11 1	JCI	780		Oru	110	пор	
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LUU	гуз	110		805		, I y 1	цуз	LCu	810		1110	110		815		

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Gln	Asp	Leu	Glu	He	Lys	Leu	He	Arg	His	Arg	Ala	Asn	Gln	He	Val	
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865					870					875					880	
cat	gca	ttt	tct	ttc	cat	at t	gat	aca	ggt	gaa	ata	gat	ttg	aa t	gaa	2688
His	Ala	Phe	Ser	Phe	His	He	Asp	Thr	Gly	Glu	He	Asp	Leu	Asn	Glu	
				885					890					895		
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Gln	Ala	He	Asp		Leu	Phe	Ala	Asp			Asp	Gln	Lys	Leu		
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#### SEQUENCE LISTING

<110> ASANO, Shinichiro

<120> PROTEIN HAVING INSECTICIDAL ACTIVITY, DNA ENCODING THE PROTEIN, AND NOXIOUS ORGANISM-CONTROLLING AGENT AND METHOD

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Leu Glu Tyr Trp Val Gly His Ser Ile Lys Tyr Lys Asn Thr Asn Ala 370 375 380

Ser Ser Ala Leu Glu Arg Asn Tyr Gly Thr Ile Thr Ser Asn Lys Ile 385 390 395 400

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Ala Ser Phe Thr Leu Leu Asp Lys Asn Thr Gly Ser Gly Ser Val Gly 435

Gly Phe Thr Tyr Ser Lys Pro His Thr Thr Met Gln Val Cys Thr Gln 450 460

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Arg Gly Tyr Ser His Arg Leu Ser His Ile Thr Ser Tyr Ser Phe Ser 485 490 495

Lys Asn Ala Ser Ser Pro Ala Arg Tyr Gly Asn Leu Pro Val Phe Ala 500 505 510

Trp Thr His Arg Ser Ala Asp Val Thr Asn Thr Val Tyr Ser Asp Lys 515 520 525

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					cct Pro											1536
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					cct Pro 550											1680
					tta Leu											1728
					cgt Arg											1776
					aca Thr											1824
					aat Asn											1872
					ggt Gly											1920

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						gat Asp										2256
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						tat Tyr										2448
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